

Sweat Furnaces

A sweat furnace is a unit that is specifically designed to reclaim aluminum from scrap that also contains large quantities of iron. The aluminum has a lower boiling point than iron and will melt off in the furnace at the right temperature while the iron remains solid. The portion of the rule that applies to **sweat furnaces** affects small businesses like scrap yards and automotive salvage operations. The rule affects all sweat furnaces, no matter the size of the unit or the business operating it.

Scrap yards might use a sweat furnace to reclaim aluminum from items like sheet and cast aluminum, while automotive salvage operations can reclaim aluminum from unusable auto parts like transmissions.

Emissions Limits

Any owner or operator of a sweat furnace may not allow emissions of dioxin/furan toxic equivalents (D/F TEQ) greater than 3.5×10^{-10} grain per dry standard cubic foot {gr/dscf} [0.80 nanogram per dry standard cubic meter {ng/dscm}] at 11 percent oxygen. For a sweat furnace to meet this limit would most likely mean installation of an afterburner on the furnace exhaust.

An **alternate limit** is to operate an afterburner with a residence time of 0.8 seconds or greater and an operating temperature of 1600°F or greater. So if the afterburners you install have a residence time shorter than 0.8 seconds, then you would have no option but to meet the emissions limit of 3.5×10^{-10} gr/dscf.

Compliance Demonstration

If you opt for the alternate limit, the owner/operator would not be required to perform an initial compliance test. Instead, the afterburner criteria in the alternate limit must be met at all times the sweat furnace is in operation. The owner/operator must operate the afterburner according to the approved OM&M plan.

Refer back to the main Secondary Aluminum MACT standard fact sheet for details on the OM&M plan.

Performance Test

If your afterburner cannot meet the alternate limit criteria, an initial performance test is required **by March 23, 2003** to demonstrate that each afterburner can meet the level of emissions required in the limit. A repeat performance test will be required every five years following the initial test.

If you must conduct an initial performance test to demonstrate compliance you must submit a test plan 60 days prior to the date the test is scheduled. The plan should outline the test methods and procedures to be followed.

Each performance test for demonstrating compliance with D/F emissions limits shall include USEPA Methods 1-4 and 23. The following methods shall also be used during each performance test:

- ✓ each test must be performed at the outlet of the afterburner;
- ✓ each test must be performed at the highest capacity of the process with charge materials representative of the range of materials processed;
- ✓ for a continuous process the test must consist of 3 runs, each of the length specified in the test method or, if not specified, a minimum of 3 hours;
- ✓ for a batch process the test must consist of 3 runs, each conducted over the entire process operating cycle;
- ✓ for multiple units exhausted through a common stack, each run must be conducted over a period of time during which each of the units completes at least one entire operating cycle or for 24 hours, whichever is shorter;
- ✓ for each afterburner, the temperature must be continuously monitored at the exit of the combustion chamber and recorded every 15 minutes during the test.

The operating parameter value or range for the afterburner operating temperature shall be established by determining each 15-minute block average temperatures during the three test runs. Then determine the 3-hour block average temperatures during the three test runs. A test will be considered complete and sufficient to demonstrate compliance when the average emissions rate measured during all three runs is less than or equal to the applicable emission limit or standard.

The same tests as those required for the performance test must be used to establish any operating parameters: maximum, minimum, or range of values. Any test performed to establish the operating parameters must be submitted along with the notification of compliance status report. Refer back to the main Secondary Aluminum MACT standard fact sheet for details on the reporting requirements. Work practices standards and design criteria may not change for the emissions units once an operating parameter has been established.

Monitoring and Recordkeeping

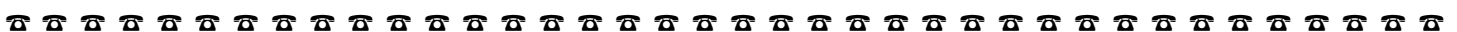
Following the performance test, the owner/operator must maintain the 3-hour average temperature in the afterburner at or above the average temperature established during the test. If no performance test was required, the owner/operator must maintain the temperature at or above 1600°F. To demonstrate compliance with this condition, the afterburner must be monitored continuously and readings of its temperature recorded in 15-minute average blocks and then the average temperature over each 3-hour period must be calculated and recorded.

The owner/operator must install, calibrate, maintain and operate a device to monitor and record the operating temperature of the afterburner. The device must be installed at the exit of the combustion zone, and have a response range from 0 to 1.5 times the average temperature established during the performance test. Calibration of the device shall be performed according to NIST methods.

An annual inspection is also required, for which a record of the results and any actions taken must be maintained on file. The inspection must include:

- ✓ inspect all burners, pilot assemblies, and pilot sensing devices and clean pilot sensor;
- ✓ ensure proper adjustment of combustion air;
- ✓ inspect internal structures (e.g., baffles) to ensure structural integrity;
- ✓ inspect dampers, fans, and blowers for proper operation;
- ✓ check for proper sealing;
- ✓ check motors for proper operation;
- ✓ inspect combustion chamber refractory lining and clean and replace lining as needed;
- ✓ check afterburner shell for corrosion and/or hot spots;
- ✓ documentation during the burn cycle that follows the inspection to show the afterburner is operating properly and all necessary adjustments were made;
- ✓ verify that the equipment is maintained in good operating condition.

Following the inspection, all necessary repairs must be completed according to the OM&M plan.



Contacts for More Information or Assistance.

The Small Business Clean Air Assistance Program helps smaller businesses understand and comply with the Clean Air Act regulations. Contact one of the program's Clean Air Specialists for more assistance: Renée Lesjak Bashel at 608/264-6153 or Tom Coogan at 608/267-9214.



For further information on the Secondary Aluminum MACT contact your DNR Regional or Service Center office shown on the **DNR Contact Fact Sheet** available from SBCAAP.